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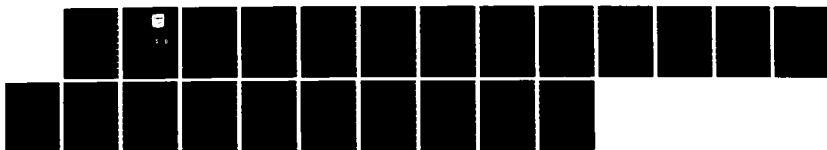
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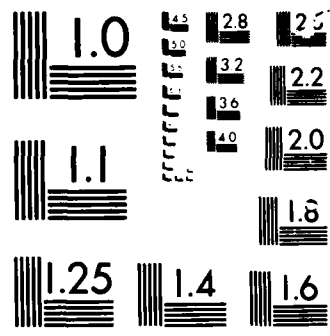
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NATO - STANDARDIZATION OF EQUIPMENT NOW AND IN THE FUTURE

BY

COLONEL TIMOTHY C. SCOBIE



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not only through additional defense spending but also through the cooperative effort of standardization and interoperability of equipment. The NATO nations, in December 1983, decided that it was important to know and understand what was needed to meet the Warsaw Pact threat up to the year 2005. In response, the Conceptual Military Framework (CMF) was designed which outlined the threat and what is needed to accommodate the recent proliferation of new initiatives (primarily, Follow-On-Forces Attack (FOFA)) and emerging technologies with the existing strategy and available resources. NATO has continued to improve its cooperative efforts in standardization and interoperability by exchanging technologies, working together as nations to build equipment, such as the Tornado aircraft, and working together to share emerging technologies. Although there has been some improvement in these areas, there still exists several problems in this cooperative effort: for economic, political, and security reasons some fail to participate. It is understood that NATO desires complete standardization and that it is necessary for its members to make every effort to support standardization or interoperability of major weapons systems to reduce cost and reduce the logistics nightmare of re-supply. Every nation, including the United States, must allow itself to purchase the best weapons and other defense systems, even though it might have a dysfunctional effect on its own industry. Politically, the effort to improve standardization and interoperability of equipment does have support. However, when it comes to the nations purchasing of the best weapons systems, they back off because of national pride, industrial pressure, and economics. There must be a two-way street in the trade of technology and the production/co-production of the best aircraft, armor, artillery, and air defense systems, if NATO is to have a reasonable standardization program. In many cases, the NATO body itself is slow to agree on its needs.

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USAWC Military Studies Paper

NATO - Standardization Of Equipment Now and In The Future

Individual Essay

by

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14 May 1986

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ABSTRACT

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The issue of standardization and interoperability within NATO is complex and emotional. NATO has just celebrated its 37th year as a successful defensive alliance and has been successful in its ability to cooperate economically and, in most cases, politically. More importantly, it has succeeded in deterring the Warsaw Pact, primarily through a strategy of nuclear deterrence. However, it has failed to provide a strong conventional defense primarily because of a lack of defense spending by member countries. The conventional force can be improved not only through additional defense spending but also through the cooperative effort of standardization and interoperability of equipment. The NATO nations, in December 1983, decided that it was important to know and understand what was needed to meet the Warsaw Pact threat up to the year 2005. In response, the Conceptual Military Framework (CMF) was designed which outlined the threat and what is needed to accommodate the recent proliferation of new initiatives (primarily, Follow-On-Forces Attack (FOFA)) and emerging technologies with the existing strategy and available resources. NATO has continued to improve its cooperative efforts in standardization and interoperability by exchanging technologies, working together as nations to build equipment, such as the Tornado aircraft, and working together to share emerging technologies. Although there has been some improvement in these areas, there still exists several problems in this cooperative effort: for economic, political, and security reasons some fail to participate. It is understood that NATO desires complete standardization and that it is necessary for its members to make every effort to support standardization or interoperability of major weapons systems to reduce cost and reduce the logistics nightmare of re-supply. Every nation, including the United States, must allow itself to purchase the best weapons and other defense systems, even though it might have a dysfunctional effect on its own industry. Politically, the effort to improve standardization and interoperability of equipment does have support. However, when it comes to the nations purchasing of the best weapons systems, they back off because of national pride, industrial pressure, and economics. There must be a two-way street in the trade of technology and the production/co-production of the best aircraft, armor, artillery, and air defense systems, if NATO is to have a reasonable standardization program. In many cases, the NATO body itself is slow to agree on its needs.

INTRODUCTION

This year NATO celebrates its thirty-seventh year as a defensive alliance. During this period, there has been no war or confrontation with the Warsaw Pact. By definition, the alliance has been successful. At present the alliance seems to be as strong as it has been through the years, but this is not to say it will not continue to face many difficulties in the future. One of its strengths, and probably the reason there has been no conflict with the Warsaw Pact, is the viability of nuclear deterrence. If NATO were to lose, or scale down, its nuclear capability through disarmament agreements, the use of conventional force would then become the mainstay of the defense. At present, and at least until the year 2005, NATO conventional forces as a whole will remain inferior to those of the Warsaw Pact in comparative strength. Additionally, NATO forces are far from being standardized or interoperable. There have been, in the last seven years, several initiatives to improve this situation, but actual progress has been slow. There are many reasons the standardization process has not come into being or has not been improved to the point where it contributes substantially to the conventional forces. First, when the alliance was signed in 1949, Europe was recovering from devastating effects of World War II. World War II left most of Central Europe in rubble, not only in the literal sense but in the economic sense as well. Europe had to rebuild its domestic economy and recover from the cost of the war. In 1950, President Truman approved the plan for the integrated defense of the North Atlantic area, releasing 900,000,000 dollars in military aid funds.¹ This aid helped rebuild forces primarily with U.S. equipment, and some of this original equipment has remained in NATO even up to the



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present. In many cases this equipment has become obsolete. As the U.S. replaced its equipment with more modern equipment, particularly in the 1950's and 1960's, the older equipment was replaced and provided to the other NATO nations. Secondly, as our NATO allies began to improve economically in the mid-sixties, they started to design and produce some of their own equipment to complement or replace the U.S. equipment they already had in their inventory. This process created a large variety of equipment that was not compatible with the types of equipment they already had. This was not all bad, because some of their equipment, such as the Leopard tank, was excellent. Also, the technology that Europe once had was beginning to resurface. The proliferation of types of equipment was a sign of economic success. Third, the poorer nations of NATO could not afford new equipment and still cannot. This process of modernization has caused a lack of standardization from the point of old equipment versus new equipment. Fourth, and as is presently the case, increasing technological capability of the industrial NATO nations has catapulted them into competition with the U.S. in the sale of weapons and defensive systems, causing many of the other nations to buy a variety of different equipment such as aircraft, tanks, and antitank and air defense systems. An example of the mix of tanks in NATO include: M-41(76mm); M-41(10mm); M-48(105mm/90mm); M-60(105mm); M-1(105/120mm, U.S. only); Leopard I(105mm); Leopard-II(120mm); Centurion(105mm); Chiefton(105mm); Challenger(120mm). Many nations have up to three different types of these tanks in their active inventory. In many cases these tanks are very different in design and operational characteristics and require nations that have a variety to buy parts from many different suppliers. If this equipment was standardized or interoperable, it would cut down tremendously on the stockage of different parts, fuels and, more importantly, the stockage of different

ammunition. It is understood that some of the less economically capable nations (i.e. Greece, Turkey, Portugal, and Belgium) have to do the best they can with what's affordable.

Improving standardization and interoperability as NATO prepares for the future will take the cooperation of all NATO members through the sharing of emerging technologies, technology transfers, and the "two-way street" concept. (You buy ours - We buy yours!). In June 1984, the Department of Defense forwarded to Congress, defining in general, the above requirements for improving NATO's conventional defense.²

Before dealing further with ways to improve standardization and interoperability, a review of how the NATO system in the development of requirements will be outlined.

CONFERENCE OF NATIONAL ARMAMENTS DIRECTORS (CNAD)

Although it might seem as though NATO members are producing weapons systems for their unilateral benefit, particularly in support of their economies, NATO does have an armaments planning board made up of senior defense representatives of member nations that coordinates the effort. Established in 1966 by The North Atlantic Council, CNAD is the highest level body on the civil side of NATO concerned with purely military matters. Its charter is "to encourage and assist countries to join together in equipment and research projects, provide a means of exchanging information on operational concepts on national programs, and on technical and logistics matters where such cooperation can benefit NATO."³ It's presently working more closely than ever with military authorities to insure a combined input of industrial and military ideas.

CNAD has six major sub-organizations covering each armed service and related matters. In addition to the three service groups, the Industrial Advisory Group (NIAG), Defense Research Group (DRG), and the Tri-Service Group or Air Defense fall under CNAD.

In order for CNAD to plan for weapons procurement, the Periodic Armament Planning System (PAPS) was designed to assist in the identification of needs prior to the initiation of national programs to provide feedback from all programs, from all nations in the annual NATO Armaments Planning Review (NAPR). NAPR is a publication which informs all nations and industries concerned with weapons replacement plans and highlights opportunities to cooperate as well as potential divergencies.⁴ Both PAPS and NAPR are significant in defining better missions and weapons requirements vital to the Long Term Defense Program (LTDP) established in 1978. The LTDP deals with nine areas which plan for the mid-term and long-term. It also exploits standardization to the fullest in setting goals for NATO's future.

The reason for describing CNAD is to indicate that NATO as a body does plan and seek out better ways to provide coordination, cooperation, and planning for armaments in the future. The major military command, even though not a member of CNAD, can present proposals through the Military Committee to CNAD for future development.

The effectiveness of CNAD is significant. It has gained the respect of its nation members and has been effective in bringing about such equipment as the Seasparrow, the NATO Frigate of the 1990's, the Hydrofoil Patrol Boat, and is presently working on the Support Helicopter for both sea and land. CNAD is one of NATO's most effective planning organizations and should be politically supported on both sides of the Atlantic if standardization and

interoperability are going to be successful.⁵ Unfortunately, each nation has a vested economic interest in what is or is not produced in weapons system. In NATO's efforts to plan armament systems for the future, there must be a concept, or a guideline, to provide direction in dealing with bodies such as CNAD.

THE CONCEPTUAL FRAMEWORK

NATO's Conceptual Military Framework (CMF) is an important document for future military deliberations. CMF is, in some respects, the NATO equivalent of the United States Army's AirLand Battle 2000. It is designed to look not only into the near requirements but the long-term requirements (2005) as well. The framework was developed because NATO did not really have a long-term goal identified for future planning. In order for nations, and the military commands, to coordinate and agree on needs, there must be a long planning process, as it takes from 13 to 15 years to bring a piece of complex equipment to IOC, particularly if several nations are involved.⁶

An important ingredient of the allied defense planning process is the Defense Planning Review which results in Force Proposals and Force Goals. Every two years NATO publishes or sends out to nations the requirements and the timeframe for which these needs are to be met. For instance, a nation that needs more anti-tank systems in its structure is told that they need so many TOWs by the year 1990. The nations respond through the Defense Planning Questionnaire (DPQ), stating how much of the Force Proposal they have met, or what their plans are for meeting it. Upon receiving the nation's input, the Force Goals for NATO are agreed upon. This process is effective only for the short and medium term, which makes the timeframe for overall coordination

of national contributions to allied defense less effective than it could be. Many of the weapons or defense systems have been nationally produced for the consumption of the national force, resulting in a lessening of standardization. To improve these procedures NATO proposed that Long Term Planning Areas (LTPAs) and Long Term Planning Guidelines (LTPGs) should be derived from the Ministerial Guidance in order to provide a better way to develop Force Proposals and Force Goals. The LTPGs would be supported by operational concepts and would also serve as a basis for the development of Mission Need Documents (MND) which would provide the initial step into the previously mentioned PAPS system.⁷ These new procedures are very closely related to the U.S. Army's Combat Development procedures. As an interim measure, these procedures were an improvement and gave a logical flow to the whole planning process, but it was concluded that a broader and more conceptual approach was necessary. A more consistent transition from the comprehensive and general guidance to more specific and more selective LTPGs, Force Goals, and MNDs was needed.

The initiation of a conceptual framework in 1983 began when SACEUR was developing the LTPG for his subconcept of Follow-On-Forces Attack (FOFA). The Military Committee requested SACEUR to provide a conceptual framework which related the FOFA LTPG to other LTPAs. In other words, SACEUR was asked to define how FOFA was supposed to tie in with and affect other planning areas, such as defeating the first echelon. This was the beginning of the overall NATO Conceptual Military Framework.

In December 1983, the Defense Planning Committee decided that the NATO Military Authorities (NMA) should "develop a conceptual military framework for the selection and application of emerging technologies in meeting military

requirements."⁸ In May 1984, in a session of the Military Committee, it was agreed that a document would be produced for Alliance-wide application in cooperation with national and major NATO commander's staffs. This framework would not only provide for the needs of the future but would hopefully bring nations together in the standardization process.

The major military commands were given the mission to provide the framework to the Military Committee for approval. This mission was complicated by the fact that the military staffs had never examined requirements to the future (2005). One of the questions that arose was the start point. Was the framework supposed to cover from the present up to the year 2005, or was it supposed to look at 2005.⁹ A look at the present LTPGs and MNDs had to be made and then, with what was already planned for the 1990s, had to be updated. The year 2005 had to be looked at with what was already planned. In the author's opinion, the conceptual military was an extension of the LTPGs and MNDs. Initially, determining the threat and what NATO required to meet the threat caused great differences of opinion. However, an agreement was reached and the plan was forwarded to the Military Committee. The Military Committee, in the summer of 1984, reviewed the first document and returned it for revision and expansion. Additionally, the Military Committee was required to have the document ready for the spring 1985 meeting of the ministers. Due to the difficulties of preparing the conceptual military framework, it was decided that there would be two parts to the framework. Part one would be applicable NATO-wide and kept general in nature, but not vague. This is understandable when covering the whole spectrum of

requirements. This first part would require unanimous national approval. The second part would be more detailed, i.e. from general to specific, and would be produced by the Major NATO Command.

One of the significant things in the process of developing the framework is that the Military Commands provide major input. The first phase of the framework by SACEUR has been submitted to the nations and, when both documents are complete, will represent the defense planning perspective of the National Military Authorities. It is of the utmost importance that nations can work together on these prospectives in order to further the emerging technologies as one body, instead of 16 different nations. Failure to coordinate and cooperate will put NATO in the same position as they are in now.

In May 1985, the first part of the framework was approved by the Military Committee and designated MC299. The aim of the document is to provide the Alliance long term planning priorities, plans for use in emerging technologies, and priorities of resource allocation. MC299 details, for the first time in a NATO document, the mission of the conventional forces. It specifies the key components of that mission. In essence, to defend against WP forces, it describes NATO airland battle, even though not presented in those terms, and the importance of maritime support.

Failure to meet one of the key mission components might lead to the failure of another. The difficulty is the assessment of these missions by the nations. Each nation may approach these assessments differently and not agree on what is needed to meet the mission. Hopefully, the MNCs can set priorities, and the nations will determine their responsibility and contribute to the allied defense. The nations support the CMF as a sound document for the future, but how they support it with defense spending and participation is

still in question. The framework is conceptually good, but with the European economic and political realities, will it have any great effect on NATO's planning future?

Even before MC299 became a document, SACEUR and many others pointed out what has been the widening gap between the NATO and WP conventional forces. As the WP forces, over the next 15 years, continue to improve in quantity and quality, they could obtain the capability to launch a major aggression with less risk than is currently possible, unless NATO improves its conventional forces. MC299 points this out in the threat assessment, and it also predicts there will be no dramatic developments in the next 15 years. However, the WP if left unchecked, will increase its capabilities as a result of identifiable evolutionary trends. MC299 really assesses where we are now and what improvements are needed for the long term.

The essence of the military framework is the application of emerging technologies to improve NATO's conventional forces and so close the gap with the WP. CNAD has been given eleven issues to study in detail. If the system works, CNAD will, with the cooperation of NATO member nations, identify new standardized systems to meet the four key mission areas; defense against the first echelon, FOFA, counter air operations, command, control, and communications and intelligence.

The Conceptual Military Framework provides a guideline for emerging technologies. It is significant that all NATO members agree they must share their new technologies to improve the Alliance's conventional defense. When there are many barriers to this sharing process (primarily economical and political), there must be a way for everyone to benefit and cooperate to keep the Alliance strong. No one can go it alone.

ARMAMENTS COOPERATION

The Secretary of Defense¹⁰ states that "the goal of international coordination and technology transfer programs is to develop, field, and support...through equitable burdensharing...the most effective and interoperable conventional military equipment for our forces and those of our allies and friends." One would expect that cooperation to make NATO weapons standardized, or at least interoperable, would be a simple process. There are several key factors that have a direct impact on this process. First, as previously mentioned, there are political barriers to armaments cooperation. Nations do not agree on what is needed to meet the conventional threat, other nations consider their social programs to be more important than their defense programs, and others support the triad as it is today. Some even believe as long as the U.S. supports NATO (opinion), why should they shell out funds for strong defensive programs. These political positions are legitimate because of the way governments have been established, particularly those that are highly socialized. Some of our NATO allies view the WP threat in a totally different way than does the U.S. Their trade with WP countries is a major factor and may have an effect on their stress on armaments cooperation. Some countries, just because of their geographic location, want to be a part of NATO but, due to their poor economic conditions, cannot share the burden other than host nation support. Political instability also impacts on a nation's support at NATO. Through the years, several member nations have consistently questioned the viability of NATO as an alliance. Fortunately, the Alliance has stayed together, survived, and probably gotten stronger politically. The economy effects politics, and this is where the biggest problem in armaments

cooperation arises. It must be clarified before discussing the economic problems that armaments cooperation, to a great extent, has improved but still has a long way to go. These improvements will be discussed later.

Economic competition is probably the biggest single factor for a nation failure to standardize. The sale of weapons systems is big business and, if the defense industries come up with a satisfactory system to meet the threat they are going to do their best to market it nationally and sell it to other NATO nations. Some nations, to support their defense industries in previous years, have bought their own, whether it's the best available or not. The United States is no exception and repeatedly has been one of the worst offenders. Another problem in improving the standardization process has been the competition of the United States versus the Europeans in the production arms. The United States, until recently, was not willing to accept European technologies because they were assumed to be inferior. On the other hand, Europe (Central Europe) has improved its economic status considerably, and feels that it now has the technology to produce excellent weapon systems and therefore no longer needs to depend on the U.S. systems. It has several cooperative ventures within itself. Several European conglomerates have worked in cooperation to produce weapons systems and are tied into NATO in way or another; Eurogroups, Western European Union (WEU), Independent European Program Group (IEPG); and France, Italy, the Netherlands, Germany, Belgium Luxembourg, and the United Kingdom (FINABEL).¹¹ These groups primarily cooperate and collaborate on the design and production of weapons systems.

Even with these groups, national interest still prevails. The European Economics Community (EEC), because of its overall economic market, has brought more cooperation of arms production closer."

The next problem in standardization centers on questions of technology transfer. All nations in NATO have developed their own technological base but are not willing to freely give or trade these technologies with other nations. In some cases this is understandable, because the technology is transferred to another nation, either by the government or the defense industry and the recipient nation, because of superior capital assets, can produce the system quicker than the nation that traded the technology. Also, Europe has an organization called COCOM that trades economically with eastern bloc nations - but only trade in "commodities" that are not defense oriented. There is a hesitancy on the part of some member nations to trade technologies (U.S. in particular) with other member nations for fear that there would be a subsequent transfer to eastern bloc countries.

Having reviewed a few of the problems that prevent standardization and interoperability, what can be done to improve the situation? First of all, announcements, such as those by the Secretary of Defense stating that the United States is willing to share in the transfer of technologies common to the defense of NATO, are significant. In a Eurogroup Communique, 21 May 1985,¹² the Defense Ministers of the Eurogroup countries reaffirmed their conviction that the security of Europe depends upon the continuing partnership with North America in the North Atlantic Alliance. They also supported the pursuit of improved cooperation within Europe and, working through the IEPG, enhanced European armaments collaboration to strengthen the Alliance by improving the European defense industrial base and transatlantic cooperation.

The bottom line in the improvement of standardization for the conventional forces is that of cooperation through the government and industry of member nations. Standardization and interoperability will never be totally complete, but if three or four nations can produce a major piece of fighting equipment or other system together, such as the Tornado fighter bomber, it will help considerably, and has.

While the U.S. Congress is calling for a better balance in defense expenditures, the Europeans are calling for a better balance in the two-way street, or transatlantic trade in armaments. The trade is estimated to be between 3.5 to 9.1 in America's favor.¹³ The Netherlands' New Defense White Paper best explains the importance of the two-way street: "One of the main goals will be a more balanced situation in the procurement of defense material between the U.S. and Europe. The existing unbalanced situation could negatively influence the political unanimity in the Alliance. It also states that the European defense industries are going to have to have more comprehensive and efficient cooperation in order to provide weapons systems at a lower cost and reduce the need to export to non-NATO nations. Support of the economically weaker partners will have priority."¹⁴

Ways to improve upon the two-way street dilemma and come up with the best standardized weapons systems are many but must begin with the R&D effort. Both government and industry on both sides of the ocean can help in this effort through the transfer of technology and agreement to research possible CNAD proposals.¹⁵ The next one in the production phase would be large scale nationally based production, as a part of an international division of labor and consequently designed wholly or partially to meet all participants' needs in the sector. This would reduce production cost. One major disadvantage is

the less competitive states would probably lose out, and this would not be politically acceptable. Other ways would be to buy the license to produce equipment from other nations. An example of this is West Germany's production of the CH-53 helicopter designed and produced originally in the US. This would provide for standardization, unless modifications were made. One of the most significant ways to improve cooperation is through co-production. The Tornado and the F-16 (to be produced in Turkey) are just a couple of co-production agreements. It is recognized that the production of armament is competitive between Europe and North America and even among the European countries themselves. As previously mentioned, all NATO members must work together and produce the best defense systems for NATO. They must continue to maximize the standardization and interoperability effort.

OTHER AREAS OF INTEREST IN THE STANDARDIZATION PROCESS

The role of the Military Agency for Standardization (MAS) is that of standardizing tactical and operational procedures. The standardization process is the responsibility of the Military Committee. Several hundred standardization agreements (STANAGS) have been written and incorporated into national doctrine for fighting in Europe. These standardization requirements require the majority of all nation's approval. Examples of STANAGs¹⁶ are ammunition interchangeability catalogues, manual, on air mobile operations, road and rail traffic control, fire support coordination and even the procedure for a common frag order. Even though there are difficult agreements on what terminology should be used, STANAGs have been attained through excellent cooperation of NATO members and MNC input. One thing that must be

accomplished is the availability of a STANAG in feedback from the armed forces. STANAGS must be updated as weapons systems and other technologies are fielded. This takes coordination with NATO members through CNAD and MNCs.

Cross-servicing is another aspect that fits into the standardization process. It specifically is involved in the servicing of NATO aircraft at fields other than their own. This could involve rearming, refueling, and minor maintenance. In order to make cross-servicing work properly, standardization and interoperability is the key. For instance, hot refueling would require proper fittings on gas tanks, and rearming would require proper fittings for hanging bombs. Cross-servicing could work without this, but the logistics of stockpiling different equipment would be cost prohibitive. Currently, great efforts are being made to support cross-servicing.

CONCLUSION

The road to standardization and interoperability has continued to improve but has a long way to go. Improvements include the Hawk II system, TOW II, F-16, Tornado, Leopard II, Roland, RAPIER, PATRIOT, and much of the artillery family. Even though the dialogue between the U.S. and Europe is excellent, Europe is very competitive in the production of arms. All nations must work together through government and industry to come up with the best and most effective defense system for NATO's defense. CNAD should be the major coordinator of weapons and other systems with the MNCs having major input. Failure to effectively standardize or have equipment that is interoperable or interchangeable could have a major impact on cost and ability to support logistically the many different systems. Standardization of equipment will reduce cost and provide a stronger defense in the future. The process takes the cooperation of all.

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